Remarks

I. Claims 1, 4, and 8 Rejection -- 35 USC §102(b). Claims 1, 4, and 8 stand rejected under 35 U.S.C. 102(b) as being anticipated by *Ewing* (3,385,539). This rejection is traversed, and claims 1 and 8 have been amended to emphasize the patentable differences.

Ewing describes a parachute assembly for aerial recovery that includes an annular ring type parachute and a smaller target parachute that is close-coupled to the annular parachute above the large central opening of the annular parachute. Exterior suspension lines 4 lead from the *Ewing* parachute skirt 5 downward to a load 6, while interior suspension lines 7a (*Ewing* Fig. 4) lead from the periphery of vent 2 to the load 6 via a common vent riser 16.

The *Ewing* exterior suspension lines 4 do not branch into multiple upper exterior suspension line segments that are connected to the parachute skirt 5. In addition, the *Ewing* interior suspension lines 7a (and lines 7 in *Ewing* Fig. 1) do not branch into multiple upper interior suspension line segments that are connected to the periphery of vent 2. *Ewing* simply has a plurality of non-branching exterior suspension lines connected to the parachute skirt 5 and a plurality of non-branching interior suspension lines connected to the periphery of the vent 2. The exterior and interior suspension lines meet directly (*Ewing* Figs. 1, 2, and 3), or via a riser 16 (*Ewing* Fig. 4), for coupling to the load 6.

Thus, *Ewing* (3,385,539) does not describe or suggest the instant invention which includes branching suspension lines. Claim **1** has been amended to emphasize the patentable differences. Currently amended independent claim **1** specifies as follows:

> Claim 1. A parachute, comprising:
>
> a circularly shaped canopy having a skirt band; and
>
> a plurality of main suspension lines connected to the skirt band;
>
> wherein each main suspension line includes a lower main suspension line segment that branches into at least two upper main suspension line segments[[.]] ; and
>
> wherein the upper main suspension line segments of each main suspension line are connected to the skirt ban.

Support for the amendment of claim 1 appears in paragraphs [08.00], [21.00], [23.00], and [24.00] of the specification, among other places, and in the drawings..

The cascaded suspension line arrangement enables tailoring of the opening forces on a circular type parachute using a planner-reefing device (slider). Significant advantages of controlling the opening forces include an increase in the maximum deployment speed, increased maximum recovery weight, increased range of deployment velocities, reduced system weight, and reduced pack volume.

Much effort has been spent trying to reduce the opening forces of existing circular parachutes with a planner-reefing devices, but with only limited success. The introduction of cascaded suspension lines provides an addition way to tailor the opening forces of the circular parachute using a planner-reefing device. The cascaded suspension lines increase the range of deployment velocities for the circular parachute.

The opening forces at high speeds are significantly reduced while the opening distances on slow speed deployments remain unchanged.

Thus, currently amended independent claim **1** is allowable. Concerning currently amended independent claim **8**, it has been amended to specify as follows:

> Claim **8**. A parachute, comprising:
>
> a circularly shaped canopy having a skirt band and a vent band;
>
> a plurality of ten main suspension lines connected to the skirt band, each main suspension line including a lower main suspension line segment that branches into at least two upper main suspension line segments, said ten main suspension lines extending from the skirt band to a suspension line junction; and
>
> a plurality of vent suspension lines connected to the vent band, each vent suspension line including a lower vent suspension line segment that branches into at least two upper vent suspension line segments, said ten vent suspension lines extending from the vent band to a vent centerline that extends to the suspension line junction[[.]] ;
>
> wherein the upper main suspension line segments of each main suspension line are connected to the skirt ban; and
>
> wherein the upper vent suspension line segments of each vent suspension line are connected to the vent ban.

Thus, currently amended claim **8** is allowable for reasons similar to those stated above for claim **1** so that currently amended independent claims **1** and **8** are allowable along with properly dependent claim **4**. Notification to that effect is requested.

II. Claims 2, 3, 5, and 6 Rejections -- 35 USC §103. Claims 2, 3, 5, and 6 stand rejected under 35 U.S.C. 103(a) as being unpatentable over *Ewing* (3,385,539) in view of ordinary skill in the art. In addition to being properly dependent on currently amended independent claim 1, currently amended dependent claim 2 specifies "a common length" for the suspension line segments (support provided by the drawings), claim 3 has been cancelled, and 5 and 6 are properly dependent upon currently amended independent claim 1, which is now allowable. Thus, currently amended claim 2 is allowable along with original claims 5 and 6. Notification to that effect is requested.

III. Claims 7 and 9 Rejections -- 35 USC §103. Claims 7 and 9 stand rejected under 35 U.S.C. 103(a) as being unpatentable over *Ewing* (3,385,539) in view of *Benney* (2003/0038215). However, claim 7 is properly dependent upon currently amended independent claim 1, which is now allowable, and claim 9 is properly dependent upon currently amended independent claim 8, which is now allowable.. Thus, original claims 7 and 9 are allowable and notification to that effect is requested.

IV. Claims 13 and 14 Rejections -- 35 USC §103. Claims 13 and 14 stand rejected under 35 U.S.C. 103(a) as being unpatentable over *Ewing* (3,385,539) in view of ordinary skill in the art. This rejection is traversed.

Currently amended independent claim **13** specifies the following:

> Claim 13. A parachute, comprising:
>
> a circularly shaped canopy having a skirt band; and
>
> a plurality of main suspension lines connected to the skirt band;
>
> wherein each main suspension line includes a lower main suspension line segment that branches into at least two upper main suspension line segments; [[and]]
>
> <u>wherein the upper main suspension line segments of each main suspension line are connected to the skirt ban; and</u>
>
> wherein the lower suspension line segment is at least partially composed of a first material and the two upper main suspension line segments are at least partially composed of a second material that is dissimilar to the first material.

Thus, currently amended claim **13** is allowable for reasons similar to those stated above for claim **1**, along with properly dependent original claim **14**. In addition, the prior art or knowledge of one of ordinary skill in the art do not describe or suggest dis-similar suspension line materials that combine to reduce opening forces of the parachute.

V. Reexamination and Allowance. In view of the foregoing, currently amended claims **1**, **8**, and **13** (independent) are now allowable together with currently amended claim **2** (properly dependent) and originally presented claims **4**, **5**, **6**, **7**, **9**, and **14** (properly dependent). Notification to that effect is requested. Reexamination and allowance are requested.